

# Heal the world by design (green, greener, watermist)

Everybody is talking about climate change. Those who have avoided the topic have to face it now. Humankind has an impact on nature and too often a negative one. Some people argue that the climate has always changed; however, Earth Overshoot Day is coming earlier every year. So, would less actually be more?

In the 1980s the world acted to save the ozone layer by signing the Montreal Protocol. One substance that was then banned was halon, a chemical used as a fire-suppression agent which had caused ozone depletion. Regarding fire protection, this ban left a gap which was filled by watermist.

Those involved in watermist have used the time since then well. They have tested systems and equipment, have developed fire-test protocols for different scenarios and different hazard categories. One of the most important outcomes was the implementation of EN 14972-1:2020. Erling Mengshoel, Prevent Systems' chairman

▼ Water droplets save a lot of water.

of the board, explains: 'As standards are published and builders, contractors, consultants, designers, installers and the authorities having jurisdiction are made aware of them, it makes it easier to specify systems that comply with the standard and reject most of the solutions that do not.'

Now, what makes watermist systems sustainable and eco-friendly? Firstly, they use less water, and we all know that water is pure, natural and precious, and not only in the Middle East. 'Using less water means less water has to be drawn from drinking water resources,' says Henrik Bygbjerg, Global Director R&D, Service, EHS&Q at Danfoss Fire Safety.

Water-based fire extinguishing systems make up by far the largest share of the extinguishing technology sector. Watermist systems use up to 85% less water than traditional sprinkler systems and are either connected to the mains or a tank, which does not need a lot of expensive square meterage. The other option, using the mains and thus the existing infrastructure makes watermist systems so attractive for home and

building owners. If they choose watermist, they get a system which protects the building and increases the level of life safety. This is done by attacking the fire without the use of harmful substances and uses less water which reduces possible damage.

There are few comparisons between watermist and sprinkler systems. However, end users looking for a water-based fire-protection system should be aware that sprinkler systems are fed from a water tank which has an enormous amount of water sitting there for sometimes years on end, not being used. So, with a smaller tank or a connection to the mains we are talking space savings. There are also material and cost savings. The same applies to other components such as pipes, valves and pumps.

Watermist is also quick to install and easy to retrofit, and often integrated into existing buildings as customers prefer not to give up the space for a tank. When it comes to the longevity of systems, stainless-steel components are often the best choice. This is not mandatory, but it prevents corrosion which is not only beneficial for the conservation of the system but also lowers the risk of contamination. Michael Bindreiter, Head of Global Sales, Aquasys, states: 'The use of high-quality corrosion-resistant stainless steel prevents contamination, supports a high hygiene standard and the longevity of the system.'

Another factor is hazardous environments. When a fire breaks out in such areas this can result in the release of many different toxins and chemicals from the fuel of the fire or gases. The firewater gathers these substances. Luciano Nigro, president at Jensen Hughes Con. Europe – Milan, says: 'In hazardous areas the extinguishing water has to be picked up and disposed of after a fire which is a difficult job that becomes easier the less water there is. The water discharged by a watermist system is much less in quantity and therefore is easier to contain and much less expensive to dispose of.'

The amount of water is indeed a recurring theme. Erling Mengshoel explains:

'Whoever is involved in the automatic water fire suppression systems industry should know that 5 millimetre per square metre per minute water density is not the most effective fire suppression water density for all ordinary hazard areas. There is a difference in protecting a small office, a theatre hall, a parking garage and a void above a false ceiling, yet they all require the same water density (5 millimetre per square metre per minute) with traditional sprinkler heads. At the same time watermist has proven for years and years that it can provide better fire suppression with a lot less water.'

Bettina McDowell adds: 'Watermist is not a one-fits-all concept. It is a performance-based technology which means that you will always get a bespoke system for your application which is based on a real-scale fire test.'

So, the less water there is, the quicker it evaporates. This again means cost savings because there is less downtime for businesses, and less effect on the environment. Watermist can also fill small areas that sprinklers simply cannot, and it is permanently discharged so the area is continuously fed with fine droplets. All this leads to a massive cooling effect that prevents re-ignition and a shielding of heat radiation.

As we begin to see people look to eco-friendly solutions, more buildings are being built with the environment in mind. One of these buildings is the Green Pea, a four-storey multi-purpose-center in Turin, Italy, with a focus on eco-friendly retail and dining. It was built based on the principles of sustainable architecture with minimal impact on the environment. VID Fire-Kill together with their Italian distributor Bettati Antincendio partook in the re-development of the building. 'Here, environmentally friendly firefighting meets the principles of sustainable architecture as the aim is to impact the environment as little as possible,' says Alex Palle, CEO at VID Fire-Kill.

The Green Pea has been devised as a living structure with wood being the recurring theme. The entire building is covered with wood panels, vegetation being part of the composition. With the use of natural materials, the project required a unique and effective fire-protection strategy that would blend into the surroundings. And since the aim was to have a low impact on the environment, the customer was on the look-out for a



Image courtesy of firefighter

matching fire-protection system. Alex Palle explains: 'The end customer knew that our low-pressure watermist system, with its low water and power consumption plus the concealed design was the perfect match for the mentioned requirements.'

Another example: In early 2019, the Alsik Hotel opened in Sønderborg, southern Denmark. Right from the concept stage, the high-rise building played a special role in a city that has made a commitment to becoming one of the most environmentally friendly places in Denmark. Known as 'Project Zero', the hotel has fully embraced the goal of the local community: sustainable growth and a carbon-free future.

When planning and erecting the building, the aim was to optimize the supply and use of energy, water and materials to ensure that running the hotel is as environmentally friendly as possible. In other words, it had to comply with the sustainability vision of the building and the city.

Another reason we are seeing people choose watermist is to protect sensitive areas and high-tech equipment under sensitive environmental conditions, while at the same time reducing the risk of contamination. This is a constant challenge for operators of laboratories, data centres, hospitals, or semiconductor production facilities. In these surroundings the combination of the technological advantages of watermist and the use of high-quality stainless steel, especially for pipes but also for all other components that come into contact with water, are the main benefits of the system.

▲ In addition to fixed systems there are also mobile systems in use.

The State Laboratory Berlin Brandenburg has seen these benefits first-hand. It is the first transnational state research institution in Germany to deal with a wide range of topics in consumer protection, radiation protection, animal disease control and disaster control. In the four-storey building, 249 square metres of laboratories with security level 3 are protected with a modern high-pressure watermist system by Aquasys.

To meet the requirements of laboratory operations, the fire-protection concept was implemented in close consultation with planners, authorities and the client. During commissioning and approval of the system, the functional capability in interaction with the fire-alarm technology was successfully tested and handed over to the customer for whom the disposal of contaminated water in case of an emergency was one of the key factors in choosing a high-pressure watermist system.

Global climate change has been identified as one of the most important – if not the most important – environmental challenge to be faced by humanity in the 21st century. In 1971, Earth Overshoot Day was on 25 December. In 2022 it was on 28 July. In 2020, humanity's ecological footprint shrank due to COVID-19. However, real sustainability can only ever be achieved by design, not disaster.

➡ For more information, go to [www.iwma.net](http://www.iwma.net)